TO
AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Daniel P. Drogichen

Application Number: 09/920,433

Filing Date: August 1, 2001

Title: MULTIPROCESSOR COMPUTER HAVING CONFIGURABLE HARDWARE SYSTEM DOMAINS

§

Examiner: Pan, Daniel H.

Group/Art Unit: 2183

Atty.Dkt.No.: 5181-92401

CERTIFICATE OF FIRST CLASS MAIL UNDER 37 C.F.R. 1.8

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Respectfully submitted,

Date: August 21, 2006

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APPEAL BRIEF

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Dear Sir/Madam:

Further to the Notice of Appeal filed herewith, Appellants present this Appeal Brief. Appellants respectfully request that the Board of Patent Appeals and Interferences consider this appeal.

I. REAL PARTY IN INTEREST

The subject application is owned by Sun Microsystems, Inc., a corporation organized and existing under and by virtue of the laws of the State of Delaware, and now having its principal place of business at 4150 Network Circle, Santa Clara, CA 95054.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences at the time of the filing of this Brief.

III. STATUS OF CLAIMS

Claims 1-16 and 18-67 are currently pending. Claim 17 has been canceled. Claims 1-7, 10-13, 16, 18-20, 22-23, 25-26, 28-36, 38-47, 50-55, 57, and 63 are finally rejected. Claims 8, 9, 14, 15, 27, 48, 49, 56, 58-62, and 64-67 are objected to as depending on a rejected base claim, but are otherwise allowable. Claims 1-7, 10-13, 16, 18-20, 22-23, 25-26, 28-36, 38-47, 50-55, 57, and 63 are therefore on appeal. A copy of claims 1-16 and 18-67, as currently pending, is included in the Claims Appendix.

IV. STATUS OF AMENDMENTS

An Amendment canceling claims 50-52 and amending claim 28 was submitted on July 6, 2006. The Examiner did not enter this amendment.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The pending independent claims are summarized below, including example reference designations in brackets and example cites to the '938 patent given in column:line format.

Independent claim 1 is directed to "[a] multiprocessor computer [400] having hardware domains [Fig. 4 (S1, S2, S3)] variably configurable by commands from an operator." 6:7-7:23; Fig. 4. The claimed "computer" is recited as "comprising" a "plurality of separate system units [410] for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of: a processor unit [510] for generating addresses within a predetermined global range, a memory unit [520] for storing data at a set of addresses within said predetermined global range, and an input/output adapter [530] for generating and/or receiving a set of addresses within said predetermined global range." 7:33-50. The claimed "computer" is further recited as "comprising" "a global address router [450] coupled to said system units for transferring addresses generated in any of said system units to others of said system units; a global data router [440] for transferring data from any of said system units to others of said system units;" and "a control-signal distributor [460] for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit." 8:10-62; 7:51-8:9; 9:11-14:65; Figs. 8-10. The claimed "computer" is further recited as "comprising" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a computer controller [470] responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains." Fig. 4;16:65-17:56. Finally, the claimed computer is recited as "comprising" "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from

being received in certain of said system units outside said one domain." 9:66-16:61.

Independent claim 10 is directed to "[a] multiprocessor computer having hardware domains [Fig. 4 (S1, S2, S3)] variably configurable by commands from an operator." The claimed "computer" is recited as "comprising" "a plurality of separate system units [410] for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of: a processor unit [510] for generating addresses within a predetermined global range, a memory unit [520] for storing data at a set of addresses within said predetermined global range, and an input/output adapter [530] for generating and/or receiving a set of addresses within said predetermined global range." 7:33-50. Furthermore, the claimed "computer" is recited as "comprising" "a global address router [450] coupled to said system units for transferring addresses generated in any of said system units to others of said system units," 8:10-62, "a global data router [440] for transferring data from any of said system units to others of said system units," 7:51-8:9, and "a control-signal distributor [460] for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit," Figs. 8-10; 9:11-14:65. Still further, the claimed "computer" is recited as "comprising" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer, said domain configurator further combining a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a computer controller [470] responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains, said computer controller being responsive to further ones of said commands for specifying to said domain configurator which of said system units belong to said domain cluster," 16:65-17:56. Finally, the claimed "computer" is recited as "comprising" "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, said domain filter permitting said at least some control signals originating in those of said system units within said one domain to

affect those of said systems units outside said one domain but within said domain cluster." 9:66-16:61.

Independent claim12 is directed to "[a] method [1200] of partitioning a computer having a plurality of system units [410], a global address router [450] , a global data router [440], a control-signal distributor [460], and a domain filter [480] into a plurality of independent hardware domains [Fig. 4 (S1, S2, S3)] under programmable control." The method is recited as "comprising: (a) [1210] starting a configuration modes; (b) [1222] receiving specification data defining a subset of said system units for inclusion within one of said hardware domains; (c) [1223] loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor;" and "(d) [1225] repeating steps (b) and (c) for further specification data defining a different subset of said system units." 17:57-18:18. Claim 12 further specifies "wherein step (c) is also responsive to said specification data for loading said domain filter so as to render those of said system units within said one domain responsive to addresses on said global address router originating from those of said system units within said one domain, and to render said system units within said first domain unresponsive to addresses on said global address router originating from at least some of those of said system units not within said first domain." 18:8-10.

Independent claim 16 is directed to "[a] method [1200, 1300] of partitioning a computer having a plurality of system units [410], a global address router [450] , a global data router [440], a control-signal distributor [460], and a domain filter [480] into a plurality of independent hardware domains [Fig. 4 (S1, S2, S3)] under programmable control." The method is recited as "comprising: (a) [1210] starting a configuration mode; (b) [1222] receiving specification data defining a subset of said system units for inclusion within one of said hardware domains; (c) [1223] loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor; (d) [1225] repeating steps (b) and (c) for further specification data defining a different subset of said system units." 17:57-18:18. Claim 16 goes on to recite that the method comprises "thereafter (j) [1323] broadcasting a transaction from one of said system units within said first domain via said global address router

to all of said system units, both within and without said first domain" and "(k) [1330] filtering said transaction at each of said system units such that those of said system units within said first domain are enabled to respond to said transaction, and others of said system units outside said first domain are disabled from responding to said transaction." 18:57-19:58.

Independent claim 20 is directed to "[a] system unit [410] for a multiprocessor computer [400] having a global address router [450], a global data router [440], and a control-signal distributor [460] for interconnecting a plurality of other ones of said system units, said computer also having a computer controller [470]." The claimed "system unit" is recited as "comprising: means coupled to both of said global routers for accepting at least one processor unit for generating addresses within a predetermined global range," (a means plus function limitation having corresponding structure found at 7:33-38 in the '938 patent), "means coupled to said global routers for accepting at least one memory unit for storing data at a set of addresses within said predetermined global range," (a means plus function limitation having corresponding structure at 7:43-45), "means coupled to said global routers for accepting at least one input/output adapter for generating and/or receiving a set of addresses within said predetermined global range," (a means plus function limitation having corresponding structure at 7:39-43), and "means connected to at least one of said preceding means for generating control signals to said distributor, said control signals representing error conditions within said system unit, and for receiving control signals representing error conditions within said other system units," (a means plus function limitation having corresponding structure at 8:11-65). Claim 20 also specifies that the claimed "system unit" "compris[es] means for filtering said control signals such that only those control signals from selectable ones of said other units can affect the operation of said system unit," (a means plus function limitation having corresponding structure at 9:66-16:61 (e.g., 55L3)) and "means connectible to said computer controller for selecting said ones of said other units," (a means plus function limitation having corresponding structure at 9:66-16:61).

Independent claim 26 is directed to "[o]ne system unit [e.g., 410-0] of a plurality of system units [410] for a multiprocessor computer [400] including a global address router [450] for transferring addresses originating in any of said system units to all others of said system units, each address of said addresses having a source identifier indicating which of said plurality of system units had originated said each address, a global data router [440] for transferring data

from any of said system units to all others of said system units" and "a control-signal distributor [460] for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit." The "system unit" of claim 26 is further recited as "including" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a computer controller [470] responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains," Fig. 4; 16:65-17:56. Still further, the "system unit" of claim 26 is recited as "including" "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain." 9:66-16:61. The "system unit" of claim 26 is additionally recited as "including" "at least one subsystem connected to said global address router for coupling said addresses between said subsystem and any other of said system units, and connected to said global data router for transferring transaction data between said subsystem and any other of said system units." The "subsystem" is recited as "being taken from the group consisting of a processor subsystem for executing transactions [510], a memory subsystem [520] for storing data within said global range, an input/output subsystem [530] for communicating with input/output adapters," 7:33-50, "at least one generator of said control signals [55L4] coupled to said distributor; at least one receptor of said control signals [55L4]," 9:51-65, "a domain writable mask register [942] receiving from said computer controller a value representing which of said plurality of system units belong to the same domain as said one system unit; a comparator [941] coupled to said domain mask register for producing an inhibiting signal when said source identifier indicates that said each address did not originate within said same domain, said inhibiting signal being coupled to said at least one subsystem so as to render it unresponsive to said each address," 10:64-14:30.

Independent claim 34 is directed to "[a] multiprocessor computer [400] having hardware domains [Fig. 4 (S1, S2, S3)] variably configurable by commands from an operator." The claimed "computer" is recited as "comprising: a plurality of separate system units [410] for performing sequences of transactions, each said system unit being individually physically

removable and replaceable within said computer, and each including at least one of: a processor unit [510] for generating addresses within a predetermined global range, a memory unit [520] for storing data at a set of addresses within said predetermined global range, and an input/output adapter [530] for generating and/or receiving a set of addresses within said predetermined global range." 7:33-50. The claimed "computer" is further recited as "comprising" "a global address router [450] coupled to said system units for transferring addresses generated in any of said system units to others of said system units," 8:10-62, "a global data router [440] for transferring data from any of said system units to others of said system units," 7:51-8:9, and "a control-signal distributor [460] for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit," 9:11-14:65. Still further, the claimed "computer" is recited as "comprising" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a computer controller [470] responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains," 16:65-17:56. Finally, the claimed "computer" is recited as "comprising" "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain." 9:66-16:61.

Independent claim 37 is directed to "[a] method [1200] of partitioning a computer [400] having a plurality of system units [410], a global address router [450], a global data router [440], a control-signal distributor [460] coupled directly to every one of said system units, and a domain filter [480] into a plurality of independent hardware domains under programmable control." The claimed method is recited as "comprising: (a) [1210] starting a configuration mode; (b) [1222] receiving specification data defining a subset of said system units for inclusion within one of said hardware domains; (c) [1223] loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor, said certain control signals representing error and status conditions occurring in any

of said system units for affecting the operation of the entire system" and "(d) [1225] repeating steps (b) and (c) for further specification data defining a different subset of said system units." 17:57-18:18.

Independent claim 40 is directed to "[a] multiprocessor computer [400] having hardware domains [Fig. 4 (S1, S2, S3)] variable configurable by commands from an operator, said computer comprising: plurality of separate system units [410] for performing sequences of transactions, each including at least one of: a processor unit [510] for generating addresses within a predetermined global range, a memory unit [520] for storing data at a set of addresses within said predetermined global range, and an input/output adapter [530] for generating and/or receiving a set of addresses within said predetermined global range." 7:33-50. The claimed "multiprocessor computer" is further recited as "comprising" "a global address router [450] coupled to said system units for transferring addresses generated in any of said system units to others of said system units," 8:10-62, "a global data router [440] for transferring data from any of said system units to others of said system units," 7:51-8:9, and "a control-signal distributor [460] for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit," 9:11-14:65. Still further, the claimed "multiprocessor computer" is recited as "comprising" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain," 9:66-16:61.

Independent claim 53 is directed to "[a] multiprocessor computer [400] having hardware domains [Fig. 4 (S1, S2, S3)] variably configurable by commands from an operator, said computer comprising: a plurality of separate system units for performing sequences of

transactions, each including at least one of: a processor unit [510] for generating addresses within a predetermined global range, a memory unit [520] for storing data at a set of addresses within said predetermined global range, and an input/output adapter [530] for generating and/or receiving a set of addresses within said predetermined global range." 7:33-50. The "multiprocessor computer" of claim 53 is further recited as "comprising" "a global address router [450] coupled to said system units for transferring addresses generated in any of said system units to others of said system units," 8:10-62, "a global data router [440] for transferring data from any of said system units to others of said system units," 7:51-8:9, and "a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit," 9:11-14:65. Finally, the "multiprocessor computer" of claim 57 is recited as "comprising" "a domain configurator [420] for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer," 6:67-7:3; Fig. 11; 16:62-17:42, and "a domain filter [480] coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain," 9:66-16:61.

Independent claim 57 is directed to "[a] computer system [400] comprising: a plurality of separate system units [410] for performing sequences of transactions, each including at least a processor unit [510] for generating addresses within a predetermined global range," 7:33-50, "a global address router [450] coupled to said plurality of separate system units and configured to transfer addresses generated in any of said system units to others of said system units," 8:10-62, and "a control-signal distributor [460] configured to communicate a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit," 9:11-14:65. The "computer system" of claim 57 is further recited as "comprising" "a domain configurator [420] coupled to electronically partition said plurality of system units into one or more software-configurable hardware domains independently of any physical reconnection of said plurality of system units, wherein each of said one or more software-configurable hardware domains includes an arbitrary subset of said plurality of system units," 6:67-7:3; Fig. 11; 16:62-17:42, and

"a domain filter [480] coupled to each of said plurality of system units and configured to electronically inhibit at least some of said control signals originating in system units belonging to a given one of said hardware domains from affecting system units not belonging to said given one of said hardware domains, wherein said domain filter is further coupled to inhibit transactions originating in system units belonging to said given one of said hardware domains from being received in said system units not belonging to said given one of said hardware domains," 9:66-16:61.

Independent claim 63 is directed to "[a] method [1200] of partitioning a computer system having a plurality of system units into one or more independent hardware domains." The claimed method is recited as "comprising: receiving specification data defining a first subset of said plurality of system units for inclusion within a first hardware domain [1210]; loading said specification data into a domain filter [1223] and causing each system unit belonging to said first subset of said plurality of system units to be responsive to a first set of control signals in a control-signal distributor, and to cause system units not belonging to said first subset of said plurality of system units to be unresponsive to said first set of control signals; and in response to said loading said specification data into said domain filter causing each system unit belonging to said first subset of said plurality of system units to be responsive to addresses originating from said system units belonging to said first subset of said plurality of system units, and causing each system unit belonging to said first subset of said plurality of system units to be unresponsive to addresses originating from said system units not belonging to said first subset of said plurality of system units." 17:57-18:56.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Whether claims 40, 53, 63, and 57 improperly recapture surrendered subject matter under 35 U.S.C. § 251.

2) Whether claims 1-6, 10-12, 16-20, 23-25, 34, 35, 37-39, 40-46, 53, 54, and 55 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Li et al (U.S. Patent No. 5,473,599).

3) Whether claims 7, 22, 26, 29, 30, 31-33, and 47 are unpatentable under 35 U.S.C. § 103(a) over Li in view of Raab et al (U.S. Patent No. 5,751,967).

4) Whether claims 13 and 36 are unpatentable under 35 U.S.C. § 103(a) over Li in view of Hardwick et al (U.S. Patent No. 5,550,816).

VI. ARGUMENT

1) Reissue Recapture Rejections

The Examiner rejected claims 40, 53, 57, and 63 under 35 U.S.C. § 251 for allegedly attempting to recapture surrendered subject matter. Each of these rejections is addressed in turn.

Claims 40 and 57

Claims 40 and 57 are addressed together because the Examiner treated the two claims the same with regard to the issue of recapture. *See* Office Action of April 6, 2006 at page 2.

Reissue claims 40 and 57 are each broadened versions of issued claims of U.S. Patent No. 5,931,938. More particularly, these claims are broadened versions of issued claim 1 of the '938 patent. Issued claim 1 corresponds, in turn, to claim 2 of the 08/912,445 application that matured into the '938 patent. As originally filed, application claims 1 and 2 were as follows:

> 1. A multiprocessor computer having hardware domains variable configurable by commands from an operator, said computer comprising:
>
> a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of
>
> processor unit for generating addresses within a predetermined global range.
>
> a memory unit for storing data at a set of addresses within said predetermined global range,
>
> an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range:
>
> a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units:
>
> a global data router for transferring data from any of said system units to others of said system units:
>
> a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit:
>
> a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of

said system units independently of any physical reconnection of said system units within said computer:

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains:

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain.

2. A computer according to claim 1, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received un certain of said system units outside one domain.

In an Office Action dated June 12, 1998, the Examiner rejected claim 1, but objected to claim 2 as being otherwise allowable but for its dependency on claim 1. *See* Office Action of June 12, 1998 at 2, 5. In response, Applicant cancelled claim 1 and amended claim 2 to include the limitations of claim 1. *See* Office Action Response of September 14, 1998, at 1-2, 12. Amended claim 2 issued as claim 1 of the '938 patent.

In this reissue application, Applicant introduced a number of independent claims, including claims 40 and 57. As shown below, these claims can be viewed as broadened versions of claim 1:

Issued Claim 1	Reissue Claim 40
1. A multiprocessor computer having hardware domains variable configurable by commands from an operator, said computer comprising:	40. A multiprocessor computer having hardware domains variable configurable by commands from an operator, said computer comprising:
a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of	plurality of separate system units for performing sequences of transactions, each **[[said system unit being individually physically removable and replaceable within said computer; and each]]** including at least one of:
processor unit for generating addresses within a predetermined global range.	a processor unit for generating addresses within a predetermined global range,
a memory unit for storing data at a set of addresses within said predetermined global range,	a memory unit for storing data at a set of addresses within said predetermined global range, **and**
an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range:	an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;
a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units:	a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;
a global data router for transferring data from any of said system units to others of said system units:	a global data router for transferring data from any of said system units to others of said system units;
a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit:	a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;
a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer:	a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer**[[:]]; and**
a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains:	
a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.	a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

Issued Claim 1	Reissue Claim 57
A multiprocessor computer having hardware domains variable configurable by commands from an operator, said computer comprising:	A **[[multiprocessor]]**computer **[[having hardware domains variable configurable by commands from and operator said computer]]** **system** comprising:
a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of	a plurality of separate system units for performing sequences of transactions, each **[[said system unit being individually physically removeable and replaceable within said computer, and]]** including at least **[[one of]]a**
processor unit for generating addresses within a predetermined global range.	processor unit for generating addresses within a predetermined global range;
a memory unit for storing data at a set of addresses within said predetermined global range,	
an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range:	
a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units:	a global address router coupled to said **[[system units for transferring]]** **plurality of separate system units and configured to transfer** addresses generated in any of said system units to others of said system units;
a global data router for transferring data from any of said system units to others of said system units:	
a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit:	a control-signal distributor **[[for communicating]]** **configured to communicate** a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;
a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer:	a domain configurator **[[for]]**coupled to electronically **[[dividing said computer into a]]**partition said plurality of **system units into one or more** software-configurable hardware domains **[[each comprising an arbitrary subset of said system units]]**independently of any physical reconnection of said **plurality of** system units **[[within said computer]]**, **wherein each of said one or more software-configurable hardware domains includes an arbitrary subset of said plurality of system units; and**
a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains:	
a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said	a domain filter coupled to **[[all]]** **each** of said **plurality of** system units **[[for]]****and configured to** electronically inhibit**[[ing]]** at least some of said control signals originating in **[[those of said]]** system units **[[within]]****belonging to a given** one of said

system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.	**hardware** domains from affecting **[[certain of said]]** system units **[[outside]]** **not belonging to** said **given** one **of said hardware** domains, wherein said domain filter is **further** coupled to **[[at least one of said global routers for]]** inhibit**[[ing]]** transactions originating in **[[those of said]]** system units **[[within]]** **belonging to said given** one of said **hardware** domains from being received in **[[certain of]]**said system units **[[outside]]** **not belonging to** said **given** one **of said hardware** domains.

While claims 40 and 57 are both broadened in certain respects relative to the issued claim 1, these claims do not improperly recapture subject matter under the Federal Circuit's three-part test set forth in *Pannu v. Storz Instruments, Inc.*, 258 F.3d 1366 (Fed. Cir. 2001). *Pannu* sets forth this test as follows:

> The first step is to 'determine whether and in what aspect the reissue claims are broader than the patent claims.'....
>
> 'The second step is to determine whether the broader aspects of the reissued claim related to surrendered subject matter' ....
>
> Finally, the court must determine whether the reissued claims were materially narrowed in other respects to avoid the recapture rule.

Id. at 1371 (emphasis added). The MPEP also provides a detailed overview of the process for recapture analysis. *See* MPEP § 1412.02.

The Federal Circuit's Three-Part Recapture Test As Applied to Claim 40

First step

As shown in the Table above, claim 40 is broader than issued claim 1 with respect to the "removable/replaceable" and "computer controller" limitations.

Second step

Applicant and the Examiner appear to primarily disagree whether the broadened limitations in claim 40 relate to "surrendered subject matter." As described above, during prosecution of the '445 application, original application claim 1 was canceled, and claim 2 (previously dependent upon claim 1) was rewritten in independent form incorporating the limitations of claim 1.

The Examiner's position appears to be that none of the limitations of claim 1 explicitly incorporated into claim 2 during prosecution can be broadened via reissue. Applicant respectfully submits that this position is flatly wrong. On the contrary, Applicant submits that, to the extent that *any* limitations in issued claim 1 might be subject to recapture, it is the additional limitations found in originally filed claim 2: "wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system

units outside said one domain." [1] *This language however is unchanged in reissue claim 40.*

The MPEP provides the following hypothetical:

> The original application claims recite limitations A+B+C, and the Office action rejection combines two references to show A+B+C. In the amendment replying to the Office action, applicant adds limitation D to A+B+C in the claims, but makes no argument as to that addition. The examiner then allows the claims. Even though there is no argument as to the addition of limitation D, it must be presumed that the D limitation was added to obviate the rejection.

MPEP § 1412.02. In this example, the difference between the original claim and the amended claim is the addition of limitation D. Slightly modifying the MPEP's example, consider two original claims, an independent one reciting A+B+C and a dependent claim adding D. If the independent claim were cancelled in response to an art restriction and its features incorporated into the (allowed) dependent claim, the difference between the canceled independent claim (A+B+C) and the amended dependent claim (A+B+C+D) would once again be D. To the extent that *any* limitation in these examples is potentially subject to recapture, it is D (although this is not *necessarily* the case).

With respect to reissue claim 40, however, the "removable/replaceable" and "computer controller" limitations are analogous to limitations A, B, and C in the above example. This is true because these limitations were part of application claim 1 and not the additional features added by application claim 2. Accordingly, recapture cannot exist with respect to these limitations.

The Examiner's position appears to be that because the "removable/replaceable" and "computer controller" limitations were "added to" dependent claim 2 during prosecution, these limitations cannot be broadened (or removed) during reissue. This rationale is flawed, however, because dependent claim 2 *already* included these limitations by virtue of its dependency on independent claim 1. Accordingly, it is flatly incorrect to suggest that the "removable/replaceable" and "computer controller" limitations relate to surrendered subject matter *when they were already part of claim 2.*

Because the broadening in claim 40 does not relate to surrendered subject matter, the recapture analysis need proceed no further than the second step of the Federal Circuit's three-part

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[1] Applicant notes that even this limitation can be broadened via reissue. *See* MPEP § 1412.02.

test. The third step of the Federal Circuit's test confirms this conclusion.

Third Step

With respect to the third step, MPEP § 1412.02 section states that "two different types of analysis must be performed."

First, the reissue claims must be compared to the canceled claims of the application. Here, the relevant canceled claim is application claim 1, which was canceled during prosecution of the '445 application. No recapture exists when reissue claim 40 is analyzed with respect to canceled claim 1, because reissue claim 40 is narrower in scope than cancelled claim 1 in at least one aspect; namely, the "wherein said domain filter is coupled to at least one of said global routers..." limitation originally found in application claim 2. On this point the MPEP states:

> Assume combination AB was originally presented in the application, and was amended in response to an art rejection to add element C and thus provide ABC (after which the patent issued). The reissue claims are then directed to combination $AB_{broadened}C$. The $AB_{broadened}C$ claims are narrower in scope when compared with the canceled claim subject matter AB in respect to the addition of C (which was added in the application to overcome the art), and there is no recapture.

MPEP § 1412.02 (emphasis in original). Thus, the first type of analysis required under the Federal Circuit's "third step" confirms there is no recapture with respect to claim 40.

Second, the reissue claims must be compared to the patent claims. Where there is broadening and narrowing of the reissue claims vis-à-vis the patent claims, the broadening and narrowing must be analyzed to determine whether the reissue claims are barred as relating to surrendered subject matter. The situation here is precisely the situation described in (2b) of the MPEP's analysis of the three-step recapture test:

> **(c) Reissue Claims are Narrower or Equal in Scope, in Area Directed to Amendment/Argument Made to Overcome Art Rejection in Original Prosecution; are Broader in Scope in Area Not Directed to the Amendment/Argument:**

In this instance, there is no recapture.

See MPEP § 1412.02 (emphasis in original). As stated above, Applicant submits that the "removable/replaceable" and "computer controller" limitations, which are omitted in claim 40, do not correspond to surrendered subject matter.

With respect to reissue claim 57, the Examiner has stated no grounds for rejection under the recapture doctrine beyond those stated for claim 40. *See, e.g.*, Office Action of September 29, 2005, at 35. Accordingly, Applicant submits that reissue claim 57 is not subject to recapture for the reasons set forth above for claim 40.

Claim 53

The Examiner also rejected claim 53 under the recapture doctrine, stating that an argument during prosecution was allegedly directed toward the "removable/replaceable" limitation of application claim 36, therefore precluding omission of this limitation in reissue claim 53.

Reissue claim 53 can be viewed as a broader version of issued claim 34 of the '938 patent. Differences between these two claims are as follows:

Issued Claim 34	Reissue Claim 53
34. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:	53. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:
a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of	a plurality of separate system units for performing sequences of transactions, **[[each said system unit being individually physically removable and replaceable within said computer, and]]** each including at least one of:
processor unit for generating addresses within a predetermined global range,	a processor unit for generating addresses within a predetermined global range,
a memory unit for storing data at a set of addresses within said predetermined global range,	a memory unit for storing data at a set of addresses within said predetermined global range, **and**
an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;	an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;
a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;	a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;
a global data router for transferring data from any of said system units to others of said system units;	a global data router for transferring data from any of said system units to others of said system units;
a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit;	a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit;
a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;	a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;
a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains;	
a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain.	a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain.

As can be seen, reissue claim 53 does not include the phrase "each said system unit being individually physically removable and replaceable within said computer." The Examiner alleges improper broadening because this limitation is not in reissue claim 53, arguing that this limitation cannot be omitted because of an argument allegedly advanced during prosecution. *See* Office Action of September 29, 2005 (citing alleged argument-based recapture at page 12 of the Office Action Response of September 14, 1998).

In an Office Action Response dated September 14, 1998 in the '445 application, the Applicant canceled rejected claims 1 and 13, rewrote several objected to claims in independent form, and added new claims 36-41, including independent claim 36. In arguing for the patentability of new claim 36 over the cited art (including U.S. Patent No. 5,710,938 to Dahl), Applicant stated as follows:

> New claim 36 reflects a difference in the present invention that is absent from any valid combination of the cited art. The cited patent to Dahl communicated "messages" from one processor to another over routing circuit 10. These messages represent input/output data produced by instructions executing in one processor and operated upon by another processor in the array. The messages are addressed by the sending processor to a specific receiving processor. **These two aspects, among others, clearly differentiate the routing circuits 10 from the 'control-signal distributor' of the present invention.** As clearly stated on page 10, lines 13-22, for example, the control signals represent error and status conditions rather than the results of computation, and they are hard-wired to all the system units, rather than being selectively connected to certain processors under the control of those processors. That is, Dahl's routing circuits correspond to Applicant's data routers, and not to the control-signal distributor. Further, the signals carried by Dahl's routing circuits only provide data for computations; this data does not affect the operation of the entire system in any way-such as shutting the whole system down, or interrupting instruction execution of all the system units while a memory fault clears in one of them.
>
> New claim 36 is drawn to this difference in operation. First, the system conditions are recited to be "error and status conditions," as opposed to the computational data carried by Dahl's routing circuits. Second, the control signals travel from any one of the system units to "all" other system units, not to Dahl's selectable on of the other units. Finally, as stated above, Dahl's routing circuits never affect 'the entire operation' of all of the system units.

See Office Action of September 14, 1998 at 12 (emphasis added). Application claim 36 issued as claim 34 in the '938 patent.

Applicant submits that any "arguments" in this passage (e.g., the bolded language) clearly refer to the "control-signal distributor" limitation of application claim 36. Because this limitation has not been broadened in any way in reissue claim 53, there is no issue of recapture here.

The Examiner, however, appears to make an argument regarding the following sentence from the above passage: "As clearly stated on page 10, lines 13-22, for example, the control signals represent error and status conditions rather than the results of computation, and they are hard-wired to all the system units, rather than being selectively connected to certain processors under the control of those processors." In particular, the Examiner claims this passage is an argument directed to the "removable/replaceable" limitation of application claim 36:

> [I]n the page 12 of the September 14, 1998 [Office Action Response], applicant also argued that prior art was directed to hard-wired to all system units. Applicant's limitation of removable/replaceable was certainly not hard-wired. This agreement [sic: argument] was used to overcome the prior art rejection. Applicant had argued in substance that the prior art was hardwired to all system units while the patented claim included the system unit being individually physically removable and replaceable. Therefore, improper recapture exists.

See Final Office Action of April 6, 2006 at 11.

As stated above, the quoted passage plainly refers to the "control-signal distributor" limitation of claim 36, which recites:

> a control-signal distributor *for communicating a plurality of control signals from any of said system units to all others of said system units* for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit.

See Response to Office Action of June 12, 1998 at 9 (emphasis added). As can be seen from the claim language, the "control-signal distributor" is for "communicating a plurality of control signals from any of said system units to all others of said system units." *Id.* In contrast, the Applicant stated that Dahl's "control signals represent error and status conditions rather than the results of computation, and they are *hard-wired* to all the system units, rather than being selectively connected to certain processors under the control of those processors." *See* Office Action of September 14, 1998 at 12 (emphasis added). In other words, Applicant was simply stating that Dahl did not have the recited "control-signal *distributor*" because Dahl's "control

signals" were "hard-wired to all the system units," and would thus have no need of such a feature. Thus, in no way was Applicant referring to the "removable/replaceable" limitation of claim 36 in the above-quoted passage. This is particularly true since the "removable/replaceable" limitation is directed to a property of "each said system unit" ("a plurality of separate system units for performing sequences of transactions, *each said system unit being individually physically removable and replaceable within said computer*"), while Applicant's comments during prosecution were directed to "control signals" in Dahl being "hard-wired" between "system units."

Applicant thus submits that no argument-based recapture exists with respect to reissue claim 53.

Claim 63

The Examiner also rejected reissue claim 63 under the recapture doctrine. In particular, the Examiner objected to the omission of the "control-signal distributor" limitation. See Office Action of September 29, 2005 at 3. Although Applicant disagreed that recapture existed, Applicant nevertheless amended reissue claim 63 to recite a "control-signal distributor." *See* Office Action Response of January 3, 2006 at 8. Reissue claim 63 now recites:

> 63. (Once Amended) A method of partitioning a computer system having a plurality of system units into one or more independent hardware domains, said method comprising:
>
> receiving specification data defining a first subset of said plurality of system units for inclusion within a first hardware domain;
>
> loading said specification data into a domain filter and causing *each system unit belonging to said first subset of said plurality of system units to be responsive to a first set of control signals in a* ***control-signal distributor***, and to cause system units not belonging to said first subset of said plurality of system units to be unresponsive to said first set of control signals; and
>
> in response to said loading said specification data into said domain filter causing each system unit belonging to said first subset of said plurality of system units to be responsive to addresses originating from said system units belonging to said first subset of said plurality of system units, and causing each system unit belonging to said first subset of said plurality of system units to be unresponsive to addresses originating from said system units not belonging to said first subset of said plurality of system units.

See Office Action Response of January 3, 1006 at 8 (emphasis added). Clearly, then, claim 63

currently recites a "control-signal distributor."

In the Office Action of April 6, 2006, however, the Examiner did not even acknowledge the amendment to claim 63, and instead maintained the § 251 rejection of this claim. Applicant submits that this rejection was in error, and that the recapture rejection of claim 63 is now moot.

2) Section 102 Rejections

The Examiner has rejected 8 of the 12 pending independent claims (1, 10, 12, 16, 20, 34, 40, and 53) under 35 U.S.C. § 102(b) based on U.S. Patent No. 5,473,599 to Li et al.

Li

Li is entitled "Standby Router Protocol." The abstract of Li is as follows:

> A system and protocol are provided for routing data packets from a host on a LAN through a virtual address belonging to a group of routers. The host is configured to point to the virtual address so that the packets it sends out of its LAN are always directed to a virtual router which may be any one of the group of routers. An active router in the group of routers emulates the virtual router. A standby router, also from the group of routers, backs up the active router so that if the active router becomes inoperative, the standby router automatically begins emulating the virtual router. The host router does not know which router from the group is actually handling the data packets it sends. If the standby router becomes inoperative or takes over for the active router, other routers in the group hold an election to determine which of them should take over for the standby router.

See Li (Abstract). Thus, Li is directed to "routing data packets from a host on a LAN." *Id.* In particular, Li teaches a "group of routers," one of which is an "active router." *Id.* Because the "host is configured to point to the virtual address," Li discloses a "virtual router which may be any one of the group of routers." *Id.* Li goes to disclose a "standby router" that "backs up the active router so that if the active router becomes inoperative, the standby router automatically begins emulating the virtual router." *Id.* If the "standby router ... takes over for the active router, other routers in the group hold an election to determine which of them should take over for the standby router." *Id.*

Claim 1

In contrast to Li's teachings of "routing data packets from a host on a LAN" using a "standby router," consider currently pending claim 1:

> 1. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:
>
> plurality of separate system units for performing sequences of

transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

Applicant respectfully submits that Li (as can be seen from its Abstract) is plainly and fundamentally different from the pending claims (for example, claim 1).

Most basically, Li does not disclose a "multiprocessor computer," as recited in claim 1. Instead, Li teaches "A system and protocol are provided for routing data packets from a host on a LAN." *See* Li Abstract. In the present Office Action, the Examiner argues that because Li discloses "host H1," "host H2," and a "LAN," then Li teaches a "multiprocessor computer." Note that Li defines "host" as "a PC or other arbitrary network entity residing on a LAN and communicating with network entities outside of its own LAN through a router or bridge." Li at 4:7-9. Applicant respectfully disagrees with the Examiner's characterization of Li, and submits that the reference teaches nothing more than a first computer ("host H1") coupled to a second computer ("host H2") via a local area network ("LAN"). *See* Li, Fig. 2b. By Li's own

definition, each "host" is its own "entity"—for example, a personal computer ("PC"). This arrangement is not a "multiprocessor computer" as recited in claim 1.

Given that Li does not teach or suggest a "multiprocessor computer" as recited in claim 1, it follows that Li also does not teach or suggest a "multiprocessor computer" comprising any of the various elements recited in claim 1. For example, Li does not teach or suggest "a multiprocessor computer having hardware domains variably configurable by commands from an operator," as recited in claim 1. The Examiner has not pointed to any passage in Li that even refers to "domains," let alone "a multiprocessor computer having hardware domains that are "variably configurable." In the present Office Action, the Examiner asserts that elements R1-R7 are "hardware domains." *See* Office Action of April 6, 2006 at 5 (citing Fig. 2b and 7:30-61 as teaching this limitation). As can be seen from Li, however, elements R1-R7 in Fig. 2b are each "routers." *See* Li at 7:45-50. Applicant respectfully submits that elements R1-R7 do not teach "hardware domains variably configurable by commands from an operator," much less this limitation within a "multiprocessor computer" (as recited in claim 1). Thus, even if the coupling of "host H1" to "host H2" via a "LAN" in Li were a "multiprocessor computer" as recited in claim 1 (which it is not), Li does not teach or suggest "hardware domains variably configurable by commands from an operator," as also recited in that claim. Applicant submits that the "IP addresses programmed by the programmer" (*see* col. 15, lines 30-35 cited by the Examiner at pp. 4-5 of the Office Action of September 29, 2005) do not constitute "hardware domains variably configurable by commands from an operator" within a "multiprocessor computer."

Applicant respectfully submits that Li does not teach many of the other limitations of claim 1. Li does not teach a "plurality of separate system units ... each said system unit being individually physically removable and replaceable within said computer." For this limitation, the Examiner states that Li's "routers" are the "plurality of separate system units." *See* Office Action of September 29, 2005 at 5. The Examiner cites col. 4, lines 10-14 and 25-28 for the routers being "physically removable and replaceable within said computer." First, as noted above, the LAN configuration of Li is not a "multiprocessor computer" as recited in claim 1. Accordingly, the routers of Li are not "physically removable and replaceable *within said computer*," as recited in claim 1. Furthermore, col. 4, lines 10-14 and 25-28 do not teach the routers being "physically removable and replaceable within said computer." Instead these passages simply provide as follows:

> A "router" is a piece of hardware which operates at the network layer to direct packets between various LANs of the network. The network layer generally allows pairs of entities in a network to communicate with each other by finding a path through a series of connected nodes.
>
> A MAC address is generally intended to apply to a specific physical device no matter where it is plugged into the network. Thus, a MAC address is generally hardcoded into the device--on a router's ROM, for example.

Li at col. 4, lines 10-14, 25-28. (In fact, the cited definition of "router," again confirms that Li is not directed to a "multiprocessor computer" as recited in claim 1.)

Even though Li discloses a "router," it does not disclose a "global address router" or "global data router" or a "control-signal distributor" as recited in claim 1 since Li does not disclose the recited "plurality of separate system units" as recited above.

Li certainly does not teach or suggest a "a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer." First, as stated above, Li does not disclose a "multiprocessor computer" as recited in claim 1. Second, the Examiner does not actually point to anything in Li as constituting the "domain configurator," but simply states "see how the R1-R7 divided in groups in fig. 2b, col. 7, lines 30-61." *See* Office Action of September 29, 2005 at 6. Applicant respectfully submits that the fact that elements R1-R7 may be "divided in groups" in Li is an insufficient showing of the recited limitation. Third, above and beyond these deficiencies, the Examiner has not shown any teaching or suggestion of "software-configurable domains each comprising an *arbitrary subset of said system units independently of any physical reconnection of said system units within said computer*," as recited in claim 1.

Still further, Li does not teach or suggest the "computer controller" recited in claim 1 at least because Li does not teach or suggest the recited "domain configurator," which is recited in the computer controller limitation of claim 1.

Finally, Li does not teach or suggest the recited "domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global

routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain" of claim 1. The Examiner does not even identify a "domain filter" in Li, but simply points to Fig. 7, which is simply a "chart showing the events which cause a router of Fig. 6 to change states." Li at col. 3, lines 64-65. Even assuming Fig. 7 suggests the recited "domain filter" (which it does not), it certainly does not teach or suggest a "domain filter" that is "coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain" or one that is "coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain."

In sum, Applicant asserts that the Examiner's use of Li to reject claim 1 is fundamentally flawed, and that Li does not anticipate this claim.

Claims 2, 4, and 6

Applicant submits that dependent claims 2, 4, and 6 are patentably distinct over Li for at least the reasons specified for claim 1.

Claims 3 and 5

Applicant submits that claims 3 and 5 are patentably distinct over Li for at least the reasons specified for claim 1. Additionally, Applicant submits that, contrary to the Examiner's assertion, col. 5, lines 50-59 does not teach or suggest "wherein said global address router has multiple paths coupled to all of said system units for carrying a plurality of transactions between different subsets of said system units simultaneously," as recited in claims 3 and 5.

Claim 10

Applicant submits that claim 10 is patentably distinct over Li for at least the reasons specified for claim 1. Additionally, Applicant submits that Li does not teach or suggest "said domain configurator further combining a plurality of said hardware domains in to a domain capacitor comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer," as recited in claim 10. Applicant has reviewed the Examiner's rejection found at page 7 of the office action of September 29, 2005,

and can find no teaching of this limitation in Li.

Claim 11

Applicant submits that claim 11 is patentably distinct over Li for at least the reasons specified for claim 10. Additionally, Applicant submits that Li does not teach or suggest "wherein one of said domains within said domain cluster includes physical memory accessible within said predetermined shared address range by a different domain within said domain cluster," as recited in claim 11. Applicant has reviewed the passage cited by the Examiner as allegedly teaching this limitation, col. 6, lines 45-50 of Li and while this passage teaches "addresses which are shared by a group of routers," this passage does not teach the additional limitations of claim 11. Indeed, col. 6, lines 45-50 states that the addresses referred to by the Examiner are "virtual memory," as recited by claim 11. Applicant submits that Li does not teach the concept of a "domain cluster," as recited in claim 11.

Claim 12

Applicant submits that claim 12 is patentably distinct over Li because, as specified above in relation to claim 1, Li does not teach or suggest "a computer having a plurality of system units, a global address router, a global data router, a control-signal distributor, and a domain filter," as recited in claim 12.

Claim 16

Applicant submits that claim 16 is patentably distinct over Li for at least the reasons specified for claim 12 (and, by extension, claim 1). Additionally, Applicant submits that Li does not teach steps (j) and (k) as recited in claim 16. Applicant has reviewed the passage cited by the Examiner as allegedly teaching these limitations and respectfully submits that the Examiner does not satisfy the burden that Li teaches or suggests these limitations.

Claim 18

Applicant submits that claim 18 is patentably distinct over Li for at least the reasons specified for claim 1. Additionally, Applicant submits that the Examiner has not specifically identified any passage that teaches or suggests "wherein step (k) disables less than all of said system units outside said first domain," as recited in claim 18.

Claim 19

Applicant submits that claim 19 is patentably distinct over Li for at least the reasons

specified for claim 16. Additionally, Applicant submits that the Examiner has not specifically identified a teaching or suggestion in Li that relates to the additional limitations of claim 19.

Claim 20

Applicant submits that claim 20 is patentable distinct over Li for at least the reasons specified for claim 1. Applicant also states that the Examiner, in rejecting claim 20, has provided no analysis of the how the means plus function limitations of this claim are met by Li.

Claims 23-25

Applicant submits that claims 23-25 are patentably distinct over Li for at least the reasons specified for claim 20. Additionally, Applicant submits that the passage cited by the Examiner as allegedly teaching the additional limitations of these claims, col. 5, lines 35-39, does not teach "a shared-memory register" as recited in claims 23-25

Claim 34

Applicant submits that claim 34 is patentably distinct over Li for at least the reasons specified for claim 1.

Claim 35

Applicant submits that claim 35 is patentably distinct over Li for at least the reasons specified for claim 34.

Claim 37

Applicant submits that claim 37 is patentably distinct over Li for at least the reasons specified for claim 12.

Claim 38

Applicant submits that claim 38 is patentably distinct over Li for at least the reasons specified for claim 37 (and by extension claim 12).

Claim-39

Applicant submits that claim 39 is patentably distinct over Li for at least the reasons specified for claim 16.

Claims 40-41, 46

Applicant submits that claims 40-41, and 46 are patentably distinct over Li for at least the reasons specified for claim 1.

Claims 42 and 44

Applicant submits that dependent claims 42 and 44 are patentably distinct over Li for at least the reasons specified for claim 1.

Claims 43 and 45

Applicant submits that claims 43 and 45 are patentably distinct over Li for at least the reasons specified for claim 40. Additionally, Applicant submits that claims 43 and 45 are also patentably distinct over Li for at least the reasons specified for claims 3 and 5.

Claims 53-55

Applicant submits that claims 53-55 are patentably distinct over Li for at least the reasons specified for claim 1.

3) Section 103 Rejections (Li/Raab)

The Examiner has rejected claims 7, 22, 26, 29, 30, 31-33, and 47 under 35 U.S.C § 103(a) as being unpatentable over Li in view of U.S. Patent No. 5,751,967 to Raab et al.

Claim 7

Applicant submits that claim 7 is patentably distinct over Li and Raab for at least the reasons specified for claim 1; namely that Li does not teach many of the limitations of that claim. Accordingly, Applicant submits that even if Li and Raab were combined, it would not yield the claimed combination recited in claim 7. Additionally, Applicant notes that Raab teaches a "networking system" and not a "multi-processor computer" as recited in claim 7.

Claim 22

Applicant submits that claim 22 is patentably distinct over Li and Raab for at least the reasons specified for claim 20. Additionally, Applicant submits that the proposed combination of Li and Raab does not yield the claimed combination recited in claim 22, for reasons similar to those specified for claim 7.

Claim 26

Applicant submits that independent claim 26 is patentably distinct over Li and Raab for at least the reasons specified for claims 1 and 7.

Claims 29-33

Applicant submits that claims 29-33 are patentably distinct over Li and Raab for at least

the reasons specified for claims 26.

Claim 47

Applicant submits that claim 47 is patentably distinct over Li and Raab for at least the reasons stated in relation to claims 1 and 7.

4) Section 103 Rejections (Li/Hardwick)

The Examiner rejected claims 13 and 36 as unpatentable under 35 U.S.C. § 103(a) over Li in view of U.S. Patent No. 5,550,816 to Hardwick et al.

Claim 13

Applicant submits that claim 13 is patentably distinct over Li and Hardwick for at least the reasons specified for claim 12. Accordingly, since the Examiner is merely relying on Hardwick to teach what are perceived to be the "missing" limitations of claim 13, Applicant submits that the Examiner has not established a prima facie case of obviousness because it has not been shown that all limitations of claim 12 are taught or suggested by the cited art. Additionally, Applicant submits that Hardwick is directed to a "physical switching device for use in a communication network," and thus, like Li, is not directed to "a computer having a plurality of system units, a global address router, a global data router and a domain filter," as recited in claim 13.

Claim 36

Applicant submits that claim 36 is patentably distinct over Li and Hardwick for at least the reasons specified for claims 34 and 13.

VIII. CLAIMS APPENDIX

The claims on appeal are as follows.

1. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:

plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

2. A computer according to claim 1, wherein said one global router is said global address router.

3. A computer according to claim 2, wherein said global address router has multiple paths coupled to all of said system units for carrying a plurality of transactions between different subsets of said system units simultaneously.

4. A computer according to claim 1, wherein said one global router is said global data router.

5. A computer according to claim 4, wherein said global data router has multiple paths coupled to all of said system units for carrying data associated with a plurality of transactions between different subsets of said system units simultaneously.

6. A computer according to claim 1, wherein said domain filter is coupled both to said global address router and to said global data router for inhibiting both addresses and data originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

7. A computer according to claim 1, wherein said domain filter includes:

a connection for identifying which of said system units has generated a current address in said address router;

at least one domain-mask register for each of said system units specifying which of said system units belong to which of said domains,

gating logic responsive to said source-identifying connection and to said domain-mask register for decoupling said system unit from all of said system units not in the same domain as said system unit having generated said current address.

8. A computer according to claim 7, wherein said domain filter includes

a plurality of cluster registers each identifying which of said system units belong to a domain cluster, and responsive to a current one of said transactions;

a connection for transmitting a valid-transaction signal to each of said system units in said common cluster for any of said transactions originating from one of said system units belonging to said domain cluster.

9. A computer according to claim 8, wherein said domain filter includes a shared-address register indicative of a range of shared addresses among different system units within said domain cluster.

10. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:

a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer, and each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of

said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer, said domain configurator further combining a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer;

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains, said computer controller being responsive to further ones of said commands for specifying to said domain configurator which of said system units belong to said domain cluster;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, said domain filter permitting said at least some control signals originating in those of said system units within said one domain to affect those of said systems units outside said one domain but within said domain cluster.

11. A computer according to claim 10, wherein one of said domains within said domain cluster includes physical memory accessible within the same predetermined shared address range by a different domain within said domain cluster.

12. A method of partitioning a computer having a plurality of system units, a global address router, a global data router, a control-signal distributor, and a domain filter into a plurality of independent hardware domains under programmable control, comprising:

(a) starting a configuration modes;

(b) receiving specification data defining a subset of said system units for inclusion within one of said hardware domains;

(c) loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor;

(d) repeating steps (b) and (c) for further specification data defining a different subset of said system units;

wherein step (c) is also responsive to said specification data for loading said domain filter so as to render those of said system units within said one domain responsive to addresses on said global address router originating from those of said system units within said one domain, and to render said system units within said first domain unresponsive to addresses on said global address router originating from at least some of those of said system units not within said first domain.

13. A method according to claim 12, comprising the further steps of:

(f) receiving second specification data defining a cluster of multiple ones of said domains;

(g) loading said second data into said domain filter so as to render those of said system units within said cluster of domains responsive to addresses on said global address router originating from those of said system units within said cluster of domains.

14. A method according to claim 13, comprising the further steps of:

(h) receiving third specification data defining a shared range of addresses physically present within one of said domains, and accessible to other domains within said cluster of domains;

(i) loading said third data into said domain filter so as to render those of said system units within said cluster of domains responsive to addresses on said global address router originating from those of said system units within said cluster of domains but only within said

shared range.

15. A method according to claim 14, wherein said shared range is less than the total range of addresses of memory physically present on at least one of those system units within said domain cluster.

16. A method of partitioning a computer having a plurality of system units, a global address router, a global data router, a control-signal distributor, and a domain filter into a plurality to independent hardware domains under programmable control, comprising:

(a) starting a configuration mode;

(b) receiving specification data defining a subset of said system units for inclusion within one of said hardware domains;

(c) loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor;

(d) repeating steps (b) and (c) for further specification data defining a different subset of said system units; and thereafter

(j) broadcasting a transaction from one of said system units within said first domain via said global address router to all of said system units, both within and without said first domain;

(k) filtering said transaction at each of said system units such that those of said system units within said first domain are enabled to respond to said transaction, and others of said system units outside said first domain are disabled from responding to said transaction.

17. (Canceled)

18. A method according to claim 16, wherein step (k) disables less than all of said system units outside said first domain.

19. A method according to claim 16, wherein a plurality of said system units in different ones of

said domains physically include memory having addresses within respective ranges, and wherein said addresses of said respective ranges overlap at least partially.

20. A system unit for a multiprocessor computer having a global address router, a global data router, and a control-signal distributor for interconnecting a plurality of other ones of said system units, said computer also having a computer controller, said system unit comprising:

means coupled to both of said global routers for accepting at least one processor unit for generating addresses within a predetermined global range;

means coupled to said global routers for accepting at least one memory unit for storing data at a set of addresses within said predetermined global range;

means coupled to said global routers for accepting at least one input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

means connected to at least one of said preceding means for generating control signals to said distributor, said control signals representing error conditions within said system unit, and for receiving control signals representing error conditions within said other system units;

means for filtering said control signals such that only those control signals from selectable ones of said other units can affect the operation of said system unit;

means connectible to said computer controller for selecting said ones of said other units.

21. A system unit according to claim 20, said filtering means including:

a domain mask register for holding data designating said selectable ones of said other units;

gating means for passing certain signals from said selectable ones, and for blocking said certain signals from others of said system units.

22. A system unit according to claim 21, further comprising means for loading variable data into said domain mask register.

23. A system unit according to claim 20, said filtering means including a shared-memory register for holding data designating memory physically installed on any of said system units in said computer in a portion of said global range as being accessible to said system unit.

24. A system unit according to claim 23, further comprising means for loading variable data into said shared-memory register.

25. A system unit according to claim 23, said filtering means including at least one further shared-memory register for holding data designating an address range comprising only a portion of said memory physically installed on said any system unit.

26. One system unit of a plurality of system units for a multiprocessor computer including

a global address router for transferring addresses originating in any of said system units to all others of said system units, each address of said addresses having a source identifier indicating which of said plurality of system units had originated said each address,

a global data router for transferring data from any of said system units to all others of said system units,

a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit,

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer,

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains,

a domain filter coupled to all of said system units for electronically inhibiting at

least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, said one system unit comprising:

at least one subsystem connected to said global address router for coupling said addresses between said subsystem and any other of said system units, and connected to said global data router for transferring transaction data between said subsystem and any other of said system units, said subsystem being taken from the group consisting of

a processor subsystem for executing transactions,

a memory subsystem for storing data within said global range,

an input/output subsystem for communicating with input/output adapters;

at least one generator of said control signals coupled to said distributor;

at least one receptor of said control signals;

a domain writable mask register receiving from said computer controller a value representing which of said plurality of system units belong to the same domain as said one system unit;

a comparator coupled to said domain mask register for producing an inhibiting signal when said source identifier indicates that said each address did not originate within said same domain, said inhibiting signal being coupled to said at least one subsystem so as to render it unresponsive to said each address.

27. A system unit according to claim 26, wherein said domain configurator further combines a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer;

at least one writable shared-memory mask register which of said plurality of system units belong to the same domain cluster as said one system unit,

said comparator being further coupled to said domain mask register for producing

said inhibiting signal when said source identifier indicates that said each address originated at certain of said system units outside said same domain cluster.

28. A system unit according to claim 16, wherein said at least one subsystem includes said memory subsystem for storing data within a portion of said global address range, said system unit further comprising:

at least one shared-memory address register receiving from said computer controller a value defining a shared range of memory addresses within said portion of said global range,

said comparator being further responsive to said shared-memory address register for inhibiting said memory subsystem when said each address lies outside said shared range.

29. A system unit according to claim 26, wherein said at least one generator of said control signals forms a portion of a local address arbiter for requesting and receiving accesses to said global address router.

30. A system unit according to claim 29, wherein said at least one receptor of said control signals further forms a portion of said local address arbiter.

31. A system unit according to claim 26, wherein said one system unit includes at least two different ones of said subsystems.

32. A system unit according to claim 31, wherein said one system unit includes all three of said subsystems.

33. A system unit according to claim 26, wherein said processor subsystem includes a plurality of individual microprocessors.

34. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:

a plurality of separate system units for performing sequences of transactions, each said system unit being individually physically removable and replaceable within said computer,

and each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;

a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain.

35. A computer according to claim 34, wherein said domain filter is coupled to at least one of

said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

36. A computer according to claim 34, wherein:

said domain configurator further combines a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer;

said computer controller is responsive to further ones of said commands for specifying to said domain configurator which of said system units belong to said domain cluster;

said domain filter permitting said at least some control signals originating in those of said system units within said one domain to affect those of said systems units outside said one domain but within said domain cluster.

37. A method of partitioning a computer having a plurality of system units, a global address router, a global data router, a control-signal distributor coupled directly to every one of said system units, and a domain filter into a plurality of independent hardware domains under programmable control, comprising:

(a) starting a configuration mode;

(b) receiving specification data defining a subset of said system units for inclusion within one of said hardware domains;

(c) loading said specification data into a domain filter so as to render those of said system units within said one domain responsive to certain control signals in said distributor, and to render others of said system units unresponsive to said distributor, said certain control signals representing error and status conditions occurring in any of said system units for affecting the operation of the entire system;

(d) repeating steps (b) and (c) for further specification data defining a different subset of said system units.

38. A method according to claim 37, wherein step (c) is also responsive to said specification data for loading said domain filter so as to render those of said system units within said one domain responsive to addresses on said global address router originating from those of said system units within said one domain, and to render said system units within said first domain unresponsive to addresses on said global address router originating from at least some of those of said system units not within said first domain.

39. A method according to claim 37, further comprising the steps, performed after step (d), of:

(e) broadcasting a transaction from one of said system units within said first domain via said global address router to all of said system units, both within and without said first domain;

(f) filtering said transaction at each of said system units such that those of said system units within said first domain are enabled to respond to said transaction, and others of said system units outside said first domain are disabled from responding to said transaction.

40. A multiprocessor computer having hardware domains variable configurable by commands from an operator, said computer comprising:

plurality of separate system units for performing sequences of transactions, each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said

system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer; and

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

41. A computer according to claim 40 further comprising a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains.

42. A computer according to claim 41, wherein said one global router is said global address router.

43. A computer according to claim 41, wherein said global address router has multiple paths coupled to all of said system units for carrying a plurality of transactions between different subsets of said system units simultaneously.

44. A computer according to claim 41, wherein said one global router is said global data router.

45. A computer according to claim 44, wherein said global data router has multiple paths coupled to all of said system units for carrying data associated with a plurality of transactions between different subsets of said system units simultaneously.

46. A computer according to claim 41, wherein said domain filter is coupled both to said global

address router and to said global data router for inhibiting both addresses and data originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

47. A computer according to claim 41, wherein said domain filter includes:

a connection for identifying which of said system units has generated a current address in said address router;

at least one domain-mask register for each of said system units specifying which of said system units belong to which of said domains;

gating logic responsive to said source-identifying connection and to said domain-mask register for decoupling said system unit from all of said system units not in the same domain as said system unit having generated said current address.

48. A computer according to claim 47, wherein said domain filter includes

a plurality of cluster registers each identifying which of said system units belong to a domain cluster, and responsive to a current one of said transactions;

a connection for transmitting a valid-transaction signal to each of said system units in said common cluster for any of said transactions originating from one of said system units belonging to said domain cluster.

49. A computer according to claim 48, wherein said domain filter includes a shared-address register indicative of a range of shared addresses among different system units within said domain cluster.

50. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:

a plurality of separate system units for performing sequences of transactions, each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer, said domain configurator further combining a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said domains from affecting certain of said system units outside said one domain, said domain filter permitting said at least some control signals originating in those of said system units within said one domain to affect those of said systems units outside said one domain but within said domain cluster.

51. A computer according to claim 50, further comprising a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains, said computer controller being responsive to further ones of said commands for specifying to said domain configurator which of said system units belong to said

domain cluster.

52. A computer according to claim 50, wherein one of said domains within said domain cluster includes physical memory accessible within the same predetermined shared address range by a different domain within said domain cluster.

53. A multiprocessor computer having hardware domains variably configurable by commands from an operator, said computer comprising:

a plurality of separate system units for performing sequences of transactions, each including at least one of:

a processor unit for generating addresses within a predetermined global range,

a memory unit for storing data at a set of addresses within said predetermined global range, and

an input/output adapter for generating and/or receiving a set of addresses within said predetermined global range;

a global address router coupled to said system units for transferring addresses generated in any of said system units to others of said system units;

a global data router for transferring data from any of said system units to others of said system units;

a control-signal distributor for communicating a plurality of control signals from any of said system units to all others of said system units for affecting the entire operation of all of said system units in response to error and status conditions occurring in said any system unit;

a domain configurator for electronically dividing said computer into a plurality of software-configurable hardware domains each comprising an arbitrary subset of said system units independently of any physical reconnection of said system units within said computer;

a domain filter coupled to all of said system units for electronically inhibiting at least some of said control signals originating in those of said system units within one of said

domains from affecting certain of said system units outside said one domain.

54. A computer according to claim 53, further comprising a computer controller responsive to said commands for specifying to said domain configurator which of said system units belong to each of said hardware domains.

55. A computer according to claim 53, wherein said domain filter is coupled to at least one of said global routers for inhibiting transactions on said one global router originating in those of said system units within one of said domains from being received in certain of said system units outside said one domain.

56. A computer according to claim 53, wherein:

said domain configurator further combines a plurality of said hardware domains into a domain cluster comprising an arbitrary subset of said domains independently of any physical reconnection of said system units within said computer;

said computer controller is responsive to further ones of said commands for specifying to said domain configurator which of said system units belong to said domain cluster;

said domain filter permitting said at least some control signals originating in those of said system units within said one domain to affect those of said systems units outside said one domain but within said domain cluster.

57. A computer system comprising:

a plurality of separate system units for performing sequences of transactions, each including at least a processor unit for generating addresses within a predetermined global range;

a global address router coupled to said plurality of separate system units and configured to transfer addresses generated in any of said system units to others of said system units;

a control-signal distributor configured to communicate a plurality of control

signals from any of said system units to others of said system units for affecting the operation of all of said system units in response to conditions occurring in said any system unit;

a domain configurator coupled to electronically partition said plurality of system units into one or more software-configurable hardware domains independently of any physical reconnection of said plurality of system units, wherein each of said one or more software-configurable hardware domains includes an arbitrary subset of said plurality of system units; and

a domain filter coupled to each of said plurality of system units and configured to electronically inhibit at least some of said control signals originating in system units belonging to a given one of said hardware domains from affecting system units not belonging to said given one of said hardware domains, wherein said domain filter is further coupled to inhibit transactions originating in system units belonging to said given one of said hardware domains from being received in said system units not belonging to said given one of said hardware domains.

58. The computer system according to claim 57, wherein said domain filter includes:

a connection for identifying which of said plurality of system units has generated a current address in said global address router;

a domain-mask register corresponding to each of said plurality of system units configured to specify to which of said hardware domains each of said plurality of system units belongs; and

gating logic responsive to said connection and to said domain-mask register and configured to decouple a system unit having generated said current address and belonging to a particular hardware domain from system units not belonging to said particular hardware domain.

59. The computer system according to claim 58, wherein each of said plurality of system units may include a portion of said domain filter.

60. The computer system according to claim 59, wherein said domain filter is further configured to group system units of one or more of said plurality of hardware domains into a cluster, wherein said system units of said one or more domains belonging to a given cluster share a range

of addresses within a system memory space.

61. The computer system according to claim 60, wherein said domain filter further comprising:

a plurality of cluster registers each identifying to which cluster each of said plurality of system units belongs, wherein said plurality of cluster registers is responsive to a current one of said transactions;

a second connection for transmitting a valid-transaction signal to each of said plurality of system units belonging to a given cluster for any of said transactions originating from one of said plurality of system units belonging to said given cluster.

62. The computer system according to claim 60, wherein said domain filter further includes a shared-address register indicative of said range of addresses being shared among said system units of said one or more domains belonging to said given cluster.

63. A method of partitioning a computer system having a plurality of system units into one or more independent hardware domains, said method comprising:

receiving specification data defining a first subset of said plurality of system units for inclusion within a first hardware domain;

loading said specification data into a domain filter and causing each system unit belonging to said first subset of said plurality of system units to be responsive to a first set of control signals in a control-signal distributor, and to cause system units not belonging to said first subset of said plurality of system units to be unresponsive to said first set of control signals; and

in response to said loading said specification data into said domain filter causing each system unit belonging to said first subset of said plurality of system units to be responsive to addresses originating from said system units belonging to said first subset of said plurality of system units, and causing each system unit belonging to said first subset of said plurality of system units to be unresponsive to addresses originating from said system units not belonging to said first subset of said plurality of system units.

64. The method according to claim 63 further comprising:

identifying which of said plurality of system units has generated a current address;

specifying using a domain-mask register to which of said hardware domains each of said plurality of system units belongs;

decoupling a system unit having generated said current address and belonging to a particular hardware domain from system units not belonging to said particular hardware domain.

65. The method according to claim 63 further comprising grouping system units of one or more of said plurality of hardware domains into a cluster, wherein said system units of said one or more domains belonging to a given cluster share a range of addresses within a system memory space.

66. The method according to claim 63 further comprising:

identifying to which cluster each of said plurality of system units belongs using a plurality of cluster registers, wherein said plurality of cluster registers is responsive to a current one of said transactions; and

transmitting a valid-transaction signal to each of said plurality of system units belonging to a given cluster for any of said transactions originating from one of said plurality of system units belonging to said given cluster.

67. The method according to claim 63 further comprising indicating said range of addresses being shared among said system units of said one or more domains belonging to said given cluster.

IX. EVIDENCE APPENDIX

No evidence submitted under 37 CFR §§ 1.130, 1.131 or 1.132 or otherwise entered by the Examiner is relied upon in this appeal.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.

XI. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-7, 10-13, 16, 18-26, 28-47, 53-55, 57 and 63 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge the appeal brief fee of $500.00 and any other fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-92401/DMM. This Appeal Brief is submitted with a return receipt postcard.

Respectfully submitted,

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